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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,296	11/26/2003	Yong Min Ha	8733.948.00-US	5489

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EXAMINER

NGUYEN, JIMMY H

ART UNIT	PAPER NUMBER
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2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/721,296

Applicant(s)

HA ET AL.

Examiner

Jimmy H. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is made in response to applicant's preliminary amendment filed on 03/04/2004. Claims 1-33 are currently pending in the application. An action follows below:

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 2-33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As to claim 2, this claim contains the feature, "wherein the plurality of data supply lines transmit m number of video signals between the switch controller and the sampling switch array" presently recited in lines 2-4 of claim 2, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The disclosure, when filed, specifically Fig. 11 and the corresponding description, expressly discloses that a control chip (62) applies video signals to a switch controller (64) and a sampling switch array 954) via a plurality of data supply lines (PD); however, there is no where in the specification and drawings to describe **the video signals transmitted between the switch controller (64) and the sampling switch array (54).**

Accordingly, this claim contains the above underlined feature, which was not described in the

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specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As to claims 3-28, since these claims depend upon claim 2, these claims are rejected for the same reason set forth in claim 2 above.

As per claims 5 and 29, these claims contain the feature, “the switching devices in receipt of the first **and** second turn-on pulses are turned on” presently recited in last two lines of claim 5 (this feature may imply **each of switching devices receiving both the first and second turn-on pulses**) or “alternately applying a first turn-on pulse **and** a second turn-on pulse to the switches” presently recited in line 5 of claim 29 (this feature may imply **alternately applying a first turn-on pulse and a second turn-on pulse to each of switching devices**), which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The disclosure, when filed, specifically Figs. 12A and 18 and the corresponding description, expressly discloses that a first switching device S1 receives a first turn-on pulse (TP1) via a control line C1, a second switching device S2 receives a second turn-on pulse (TP2) via a control line C2, a third switching device S3 receives a first turn-on pulse (TP1) via a control line C3, a fourth switching device S4 receives a second turn-on pulse (TP2) via a control line C4, and etc., i.e., each of switching devices alternately receives a first turn-on pulse or a second-turn pulse. Accordingly, these claims contain the above underlined feature, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As to claims 6-28 and 30-33, since these claims depend upon either claim 5 or claim 29, these claims are rejected for the same reason set forth in claims 5 and 29 above.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1-4, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (Figs. 1-10 and the corresponding description, of the pending application) hereinafter AAPA, and further in view of Sato et.al. (US 6,628,261 B1), hereinafter Sato.

As to claim 1, AAPA discloses a liquid crystal display (LCD) device (see Fig. 1) comprising an LCD panel (10, see Fig. 1) having a plurality of data lines (DL, Fig. 1); a control chip (22) (see Fig. 1); a sampling switch array (14) coupled to the data lines (DL) and the control chip (22), wherein the control chip applies video signals to the data lines via a plurality of data supply lines (PD) and the sampling switch array; and a switch controller (24) coupled to the sampling switch array and the control chip, wherein the switch controller controls the sampling switch array in accordance with the control signal applied from the control chip (see Fig. 3, paragraphs 0013 and 0016). Accordingly, AAPA discloses all the claimed limitations of claim 1 except that the switch controller controls the sampling switch array in accordance with the control signal applied from the control chip, instead of a polarity of the video signals from the control chip, as presently recited in claim 1.

However, Sato discloses a related LCD device comprising a switch controller (a circuit including elements 240, 250, 260, 270, as shown in Fig. 1) receiving sampling video signals (VSP1, VSP2) and polarity control signals (FLP1, FLP2) (see Figs. 1 and 5) and controlling a sampling switch array (an array including switches 280 and 290, see Figs. 1 and 5) in accordance with of a polarity of the video signals (VSP1, VSP2) (see col. 7, line 54 through col. 9, line 33). It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify the switch controller of AAPA so that the switch controller is capable of controlling the sampling switch array in accordance with of a polarity of the video signals, in view of the teaching in the Sato reference, because this would lengthen the drive time of the signal (data) line, thereby reducing the area occupied by the switches for controlling the signal line, as taught by Sato (see col. 9, lines 24-33).

As to claim 2, AAPA discloses the control chip including a plurality of data supply lines (PD) transmitting m number of video signals to the sampling switch array, wherein m is an even integer greater than 1 (see Fig. 1, paragraph 0013).

As to claim 3, AAPA discloses the sampling switch array including a plurality of switching blocks (29, 30, ..., see Fig. 2) connected to a corresponding one of the plurality of data supply lines (PD), wherein each of the switching blocks includes m number of switching devices, and wherein the each of the switching devices divides the m number of video signals and applies the divided video signals to the plurality of data lines (see Fig. 3, paragraphs 0014 and 0015).

As to claim 4, AAPA discloses the switch controller sequentially turning the switching devices on and the video signals applied to the switching devices that are turned on (see paragraphs 0016-0018).

As to claim 12, AAPA discloses the switch controller (24) mounted directly on the LCD panel (10) (see last two lines of paragraph 0010).

As to claim 13, AAPA discloses the switch controller mounted on the PCB 20 (see Fig. 1, lines 4-5 of paragraph 0010).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ono et al. (US 5,784,042) discloses a related LCD device (see Figs. 1 and 2) comprising a sampling switch array (a sampling circuit 3) receiving video signals from a data driver circuit (2) and sampling control signals ($\Phi 1$, $\Phi 2$) from a sampling drive circuit (9) for turning on and off the switching devices (TR1, TR2) of the sampling switching array (see Figs. 3a and 3b). Jeong (US 6,335,721 B1) discloses a related LCD device (see Figs. 2-3) comprising a sampling switch array (an array including a plurality of output buffer circuit 64, see Figs. 2-3) receiving video signals from sample/hold circuit and polarity switching control signals (P_EN, N_EN) from a switch controller (a circuit including elements 28, 32; see Fig. 2) for controlling switching devices (Q1, Q3) of the sampling switching array (see Fig. 3) in according to polarity of digital video signal (see col. 1, line 55 through col. 2, line 16). Kosaka (US 6,914,587 B2) discloses a related LCD device comprising a sampling switch array (SW1-SW3, see Fig. 4) receiving video signals from an output circuit (36) and switching control signals from a switch controller (73) for turning on and off the switching devices in according to polarity of video signals (see Figs. 3-5 and the corresponding description).

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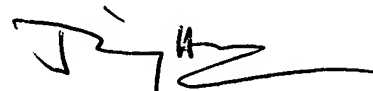
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy H. Nguyen whose telephone number is 571-272-7675.

The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached at 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JHN
January 2, 2007



Jimmy H. Nguyen
Primary Examiner
Technology Division: 2629